

ISSUED BY  
RPP-WTP PDC**MECHANICAL DATA SHEET: VESSEL**PLANT ITEM No.  
**24590-PTF-MV-RLD-VSL-000017B**

Project:	<b>RPP-WTP</b>	P&ID:	<b>24590-PTF-M6-RLD-P0003</b>
Project No:	<b>24590</b>	Process Calculation:	<b>24590-PTF-MVC-RLD-00004</b>
Project Site:	<b>Hanford</b>	Vessel Drawing	<b>24590-PTF-MV-RLD-P0002</b>
Description:	<b>Alkaline Effluent Vessel</b>		

**Reference Data**

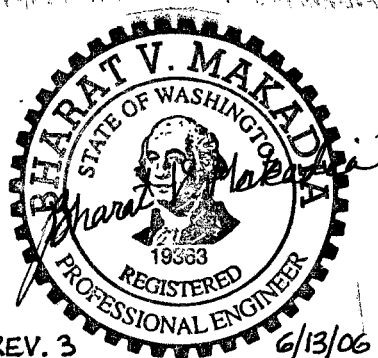
Charge Vessels Tag Numbers	<b>NIA</b>
Pulsejet Mixers / Agitators Tag Numbers	<b>RLD-MXR-00002</b>
RFDs/Pumps Tag Numbers	<b>NIA</b>

**Design Data**

Quality Level	<b>CM</b>	Fabrication Specs	<b>24590-WTP-3PS-MV00-TP001</b>		
Seismic Category	<b>SC-III</b>	Design Code	<b>ASME Sec. VIII Div 1</b>		
Service/Contents	<b>Alkaline Effluent</b>	Code Stamp	<b>Yes</b>		
Design Specific Gravity	<b>1.10</b>	NB Registration	<b>Yes</b>		
Maximum Operating Volume	gal <b>28,072</b>	Weights (lbs)	<u>Empty</u>	<u>Operating</u>	<u>Test</u>
Total Volume	gal <b>34,340</b>	Estimated	<b>87,300</b>	<b>354,500</b>	<b>373,900</b>
		Actual *	<b>93,580</b>	<b>380,180</b>	<b>355,910</b>

Inside Diameter	inch	<b>192</b>	Wind Design	<b>Not Required</b>	
Length/Height (TL-TL)	inch	<b>210</b>	Snow Design	<b>Not Required</b>	
		Vessel Operating	Vessel Design	Coil/Jacket Design	Seismic Design
					<b>24590-WTP-3PS-FB01-T0001</b>
					<b>24590-WTP-3PS-MV00-TP002</b>
Internal Pressure	psig	<b>0</b>	<b>15</b>	<b>NIA</b>	Seismic Base Moment *
External Pressure	psig	<b>0.22</b>	<b>FV</b>	<b>3</b>	<b>NIA</b>
Temperature	°F	<b>155</b>	<b>180</b>	<b>NIA</b>	Postweld Heat Treat
Min. Design Metal Temp.	°F	<b>40</b>			Corrosion Allowance
					Inch <b>0.08</b>
					Hydrostatic Test Pressure *
					psig

Note: Please note that source, special nuclear and byproduct materials, as defined in the Atomic Energy Act of 1954 (AEA), are regulated at the U.S. Department of Energy (DOE) facilities exclusively by DOE acting pursuant to its AEA authority. DOE asserts, that pursuant to the AEA, it has sole and exclusive responsibility and authority to regulate source, special nuclear, and byproduct materials at DOE-owned nuclear facilities. Information contained herein on radionuclides is provided for process description purposes only.



EXPIRES: 5/5/08

This Bound Document Contains a total of 3 sheets.

3	6/12/06	Issued for Permitting Use	C. Thompson	C. Chung / L. Han	B. Makadia	J. Julyk
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## MECHANICAL DATA SHEET: VESSEL

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### Materials of Construction

Component	Material	Minimum Thickness / Size	Containment
Top Head	<b>SA 240 304 with max. Carbon of 0.030 %</b>	<b>See Drawing</b>	<b>Auxiliary</b>
Shell	<b>SA 240 304 with max. Carbon of 0.030 %</b>	<b>See Drawing</b>	<b>Primary</b>
Bottom Head	<b>SA 240 304 with max. Carbon of 0.030 %</b>	<b>See Drawing</b>	<b>Primary</b>
Support (Skirt)	<b>SA 240 304 with max. Carbon of 0.030 %</b>	<b>See Drawing</b>	<b>NIA</b>
Jacket/Coils/Half-Pipe Jacket	<b>NIA</b>	<b>NIA</b>	<b>NIA</b>
Internals	<b>SA 240 304 with max. Carbon of 0.030 %</b>	<b>See Drawing</b>	<b>Thermowell Primary</b>
Pipe	<b>SA312 TP304 Seamless with max. Carbon of 0.030%</b>	<b>See Drawing</b>	<b>See Note-1</b>
Forgings/ Bar stock	<b>SA182 F304 with max. Carbon of 0.030 %</b>	<b>See Drawing</b>	<b>As Note-1 for Nozzle Necks</b>
Gaskets	<b>Spiral Wound, 304L Winding with Flexible Graphite Filler</b>	<b>See Drawing</b>	<b>As Note-1 for Nozzle Necks</b>
Bolting	<b>Austenitic SS type 304L</b>	<b>See Drawing</b>	<b>NIA</b>

### Miscellaneous Data

Orientation	<b>Vertical</b>	Support Type	<b>Skirt</b>
Insulation Function	<b>Not Applicable</b>	Insulation Material	<b>Not Applicable</b>
Insulation Thickness (inch)	<b>Not Applicable</b>	Welds Surface Finish	<b>De-scaled as laid</b>

### Remarks

\* To be determined by the vendor.

**Note 1: Nozzle necks below the high operating liquid level are Primary, others Auxiliary.**

**Note 2: NDE for this vessel must meet requirements per para. 6.4.2 of specification no. 24590-WTP-3PS-MV00-TP001.**

**Note 3: Vessel volumes are approximate and do not account for manufacturing tolerances, nozzles, and displacement of internals.**

**Note 4: Contents of this document are Dangerous Waste Permit affecting.**

**Note 5: Datasheet was revised to incorporate process requirements from CCN 068472.**

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## MECHANICAL DATA SHEET: VESSEL

PLANT ITEM No.  
**24590-PTF-MV-RLD-VSL-000017B**

### Equipment Cyclic Data Sheet

Plant Item Number	<b>24590-PTF-MV-RLD-VSL-00017B</b>
Component Description	<i>Parent Vessel</i>

*The information below is provisional and envelopes operational duty for fatigue assessment. It is not to be used as operational data.*

Materials of Construction	<b>SA 240 304 with max. Carbon of 0.030 %</b>
Design Life	<b>40 years</b>
Component Function and Life Cycle Description	<i>This is a "batch" vessel and cycles from nearly empty to nearly full. The vessel will be in the fill mode for two days, then in the discharge mode over the next two days.</i>

Load Type		Min	Max	Number of Cycles	Comment
Design Pressure	psig	<b>FV</b>	<b>15</b>	<b>10</b>	<i>Nominal assumption</i>
Operating Pressure	psig	<b>-0.22</b>	<b>0</b>	<b>3500</b>	
Operating Temperature	°F	<b>59</b>	<b>155</b>	<b>3500</b>	<i>Uniform material temperature range, not between two points</i>
Contents Specific Gravity		<b>1.1</b>	<b>1.1</b>	<b>NIA</b>	
Contents Level	inch	<b>Empty</b>	<b>Flooded</b>	<b>3500</b>	<i>Coincident with pressure cycles</i>
Localized Features					
Nozzles		<i>Within 50°F of vessel operating range</i>		<b>As above</b>	

### Notes

**Cycle increase:** *The Seller must increase the numbers of operational cycles given above by 10% to account for commissioning duty unless otherwise noted.*